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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/891,017	06/25/2001	Eiichiro Ikeda	1232-4727	9400

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EXAMINER

NGUYEN, LUONG TRUNG

ART UNIT	PAPER NUMBER
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2612

DATE MAILED: 08/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/891,017

Applicant(s)

IKEDA ET AL.

Examiner

LUONG T. NGUYEN

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-78 is/are pending in the application.
- 4a) Of the above claim(s) 8-36, 44-72, 74, 75, 77 and 78 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 37, 38, 73 and 76 is/are rejected.
- 7) ☒ Claim(s) 3-7 and 39-43 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 June 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION*****Election/Restrictions***

1. Applicant's election with traverse of Species I (Figures 1-3C) and claims 1-7, 37-43, 73 and 76 in the reply filed on 4/14/2005 is acknowledged. The traversal is on the ground(s) that (1) all groups of claims are properly presented in the same application; (2) undue diverse searching should not be required; and (3) all claims should be examined together.

This is not found persuasive because it is noted that the recent restriction requirement made was in the form of an election of Species. Species are always the specifically difference embodiments, MPEP § 806.04 (e). The Applicants disclose three different embodiments: first embodiment as shown in Figures 1-3C; second embodiment as shown in Figures 5-7; third embodiment as shown in Figures 7-9. These embodiments are distinct embodiments, for example, the species elected by the Applicants (i.e., Species I, Figures 1-3C reads on the first embodiment) does not disclose switch 318 and green interpolation circuit 314, which are disclosed in Figure 5 (i.e., Species II reads on the second embodiment) and does not disclose operation switch 418 or green interpolation circuit 314, which are disclosed in Figure 7 (i.e., Species III reads on the third embodiment). Further, claims of the application are directed to all three different embodiments, for example, claim 8, which recites limitation "a selector", which only reads on switch 318 of Figure 5, and can not read on Figure 1 or Figure 7. Claim 44, which recites limitation "a selection step", which only reads on switch 318 of Figure 5, and can not read on Figure 1 or Figure 7. Claim 22, which recites limitation "operation means", which only reads on operation unit 418 of Figure 7, and can not read on Figure 1 or Figure 5. Claim 58, which

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recites limitation “an operation step”, which only reads on operation unit 418 of Figure 7, and can not read on Figure 1 or Figure 5.

In view of this, the mere evidence of several patentably distinct embodiments is prima facie evidence of examining burden of the Examiner.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 8-36, 42-71, 74-75, 77-78 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected Species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 4/14/2005.

#### ***Priority***

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

#### ***Drawings***

4. Figures 4, 10, 11, 12A, 12B should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled “Replacement Sheet” in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified

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and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Specification***

5. The disclosure is objected to because of the following informalities:

On page 10, line 23, "Fig. 3" should be changed to --Fig. 3A to 3C--.

Appropriate correction is required.

6. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested:

SIGNAL PROCESSING APPARATUS AND METHOD AND IMAGE SENSING  
APPARATUS FOR REDUCING JAGGEDNESS ON COLOR IMAGE EDGE.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1, 37, 73, 76 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sorimachi (U. S. Patent No. 5,331,442) in view of Hieda (U. S. Patent No. 5,471,241).

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Regarding claim 1, Sorimachi discloses a signal processing apparatus for processing an image signal comprising:

a hue difference detector (hue detection circuit 35, Figure 12, Column 2, Lines 12-20) for detecting a hue difference between adjoining pixels;

luminance edge enhancement means for enhancing an edge pixel in an image on the basis of the hue difference detected by said hue difference detector (edge enhancement LUT 38 performs an edge enhancement process on the image signal on the basis of hue signal detected by hue detection circuit 35, Figure 12, Column 2, Lines 1-20).

Sorimachi fails to specifically disclose enhancing an edge pixel in an image by amplifying an edge luminance signal by a gain. However, Hieda teaches that for the setting of the amounts of emphasis of horizontal and vertical edges, the optimum amounts of edge emphasis are set by adjusting the gain control circuit 130 in such a manner that the amount emphasis of both edges will coincide (Column 9, Lines 12-28). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Sorimachi by the teaching of Hieda in order to obtain the optimum amounts of edge of the image signal (Column 9, Lines 25-26).

Regarding claim 37, claim 37 is a method claim of apparatus claim 1. Therefore, see Examiner's comments regarding claim 1.

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Regarding claim 73, Sorimachi discloses an image sensing apparatus (digital color copy machine, Column 1, Lines 13-39) comprising a signal processing apparatus of claim 1 (see discussion given in claim 1).

Regarding claim 76, all the limitations are contained in claim 1, except for the feature “computer usable medium having computer readable program code means”, which is included in image processor of the digital image processor as shown figure 12, Column 1, Lines 13-18.

9. Claims 2 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sorimachi (U. S. Patent No. 5,331,442) in view of Hieda (U. S. Patent No. 5,471,241) further in view of Gu (U. S. Patent No. 5,874,988).

Regarding claims 2 and 8, Sorimachi and Hieda fail to specifically disclose wherein said luminance edge enhancement means reduces the gain as the hue difference increases. However, Gu teaches a system and method for automated color correction, in which if the high edge of image is higher than reference (hue difference increases) system will reduce gain control parameter (Figures 9A-9B, Column 22, Lines 40-56). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Sorimachi and Hieda by the teaching of Gu in order to provide a system and method for automated color correction (Column 3, Lines 48-49).

***Allowable Subject Matter***

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10. Claims 3-7, 39-43 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 3, the prior art of the record fails to show or fairly suggest a signal processing apparatus comprises wherein said hue difference detector includes a subtractor for obtaining a hue angle difference between adjoining pixels; and diffusion means for diffusing the hue angle difference.

Claims 4-7 are allowable for the reasons given respect to claim 3.

Claims 39-43 are method claims of apparatus claims 3-7, respectively. Therefore, claims 39-43 are for the reasons given respect to claims 3-7, respectively.

### *Conclusion*

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kimura et al. (U. S. Patent No. 4,814,859) discloses video image processing apparatus for emphasizing color of an image by expanding hue and saturation.

Tomitaka et al. (U. S. Patent No. 5,546,125) discloses video signal follow-up processing system.

Tanabe (U. S. Patent No. 5,999,230) discloses tone correction apparatus for digital color image signal.

Takemoto (U. S. Patent No. 6,603,878) discloses image processing apparatus.



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Kao et al. (U. S. Patent No. 6,774,943) discloses method and apparatus for edge enhancement in digital images.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to LUONG T. NGUYEN whose telephone number is (571) 272-7315. The examiner can normally be reached on 7:30AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, WENDY GARBER can be reached on (571) 272-7308. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LN  
08/07/05



**LUONG T. NGUYEN**  
**PATENT EXAMINER**